

WHAT IS CLAIMED IS:

1. A semiconductor integrated circuit comprising a temperature detection circuit including:

a signal output circuit outputting a first signal having at least one rising or falling portion;

5 a delay circuit formed of at least one inverter to output a delayed version of said first signal;

a logic circuit receiving said first signal and said delayed version of said first signal;

10 a pulse width measurement circuit outputting a signal asserted in response to a signal received from said logic circuit having a pulse with a width of no less than a predetermined width corresponding to a temperature desired to be detected; and

15 a latch circuit latching a signal output from said pulse width measurement circuit, said pulse width measurement circuit having an integration circuit receiving a signal output from said logic circuit and a Schmitt trigger circuit receiving a signal output from said integration circuit, said Schmitt trigger circuit having a trigger potential set to have a value corresponding to said predetermined width.

2. The semiconductor integrated circuit according to claim 1, wherein said delay circuit is arranged external to said semiconductor integrated circuit.

3. The semiconductor integrated circuit according to claim 1, wherein said pulse width measurement circuit is arranged external to said semiconductor integrated circuit.

4. A semiconductor integrated circuit comprising a temperature detection circuit including:

a signal output circuit outputting a first signal having at least one rising or falling portion;

5           a plurality of delay circuits connected in series, each formed of at least one inverter to output a delayed version of said first signal;  
          a plurality of logic circuits each receiving said delayed version of said first signal output from a corresponding one of said delay circuits, and said first signal;  
10           a plurality of pulse width measurement circuits each outputting a signal asserted in response to a signal received from a corresponding one of said logic circuits having a pulse with a width of no less than a predetermined width corresponding to a temperature desired to be detected;  
          a plurality of latch circuits each latching a signal output from a  
15           corresponding one of said pulse width measurement circuits; and  
          a temperature determination circuit counting a logic value of a signal latched by said plurality of latch circuits, and outputting data corresponding to a value thus counted, as data indicative of temperature.

5. The semiconductor integrated circuit as recited in claim 4, further comprising a universal asynchronous receiver transmitter circuit converting said data indicative of temperature to serial data for output.

6. The semiconductor integrated circuit as recited in claim 4, further comprising a control circuit operative in response to said data indicative of temperature having no less than a predetermined value to initialize a state of an internal circuit.

7. The semiconductor integrated circuit as recited in claim 4, further comprising a control circuit operative in response to said data indicative of temperature having no less than a predetermined value to cause an internal circuit to execute an interrupt process.

8. The semiconductor integrated circuit as recited in claim 4, comprising a control circuit operative in response to said data indicative of temperature having no less than a predetermined value to allow an internal clock to have a low frequency.

9. The semiconductor integrated circuit as recited in claim 4, comprising a control circuit operative in response to said data indicative of temperature having no less than a predetermined value to set an internal power supply potential to a low potential.

10. A semiconductor integrated circuit comprising a temperature detection circuit including:

a signal output circuit outputting a first signal having at least one rising or falling portion

5 a plurality of delay circuits connected in series, each formed of at least one inverter to output a delayed version of said first signal;

a plurality of switches each receiving said delayed version of said first signal output from a corresponding one of said delay circuits;

10 a logic circuit receiving said first signal and said delayed version of said first signal output from a conducting one of said plurality of switches;

a pulse width measurement circuit outputting a signal asserted in response to a signal received from said logic circuit having a pulse with a predetermined width corresponding to a temperature desired to be detected;

15 a latch circuit latching a signal output from said pulse width measurement circuit; and

a temperature determination circuit successively allowing said plurality of switches to conduct, one at a time, starting from said switch corresponding to said delay circuit located at an preceding stage, said temperature determination circuit outputting as data indicative of  
20 temperature, data corresponding to a number of said switch allowing said asserted, latched signal to be first detected.

11. The semiconductor integrated circuit as recited in claim 10, further comprising a universal asynchronous receiver transmitter circuit converting said data indicative of temperature to serial data for output.

12. The semiconductor integrated circuit as recited in claim 10, further comprising a control circuit operative in response to said data

indicative of temperature having no less than a predetermined value to initialize a state of an internal circuit.

13. The semiconductor integrated circuit as recited in claim 10, further comprising a control circuit operative in response to said data indicative of temperature having no less than a predetermined value to cause an internal circuit to execute an interrupt process.

14. The semiconductor integrated circuit as recited in claim 10, comprising a control circuit operative in response to said data indicative of temperature having no less than a predetermined value to allow an internal clock to have a low frequency.

15. The semiconductor integrated circuit as recited in claim 10, comprising a control circuit operative in response to said data indicative of temperature having no less than a predetermined value to set an internal power supply potential to a low potential.